Volume 31, Number 3

inps journal

Indiana Native Plant Society

Fall 2024

Bramble Rambles – the 2024 Field Survey

By Mark P. Widrlechner

Brambles (blackberries, dewberries, and raspberries) belong to a taxonomically complicated genus in the rose family, the genus *Rubus*. The genus has had inadequate study in our Indiana flora, resulting in an incomplete list of species, poor understanding of the taxonomy of the group, and inadequate knowledge of the distribution, rarity, or invasiveness of these species.

Ellen Jacquart

The author is shown here preserving a voucher specimen from Orange County, Indiana. The fresh plant is pressed in a fold of newspaper between blotters and corrugated cardboards. After the plant press is reassembled, it is transported back to Butler University where it is placed in a warm spot that allows air to circulate through the cardboards and fully dry the plant.

In the Summer 2021 issue of the INPS Journal, I shared an initial report about a long-term project that Scott Namestnik (IDNR) and I had begun with the goal of surveying the diversity and status of the genus in Indiana. By that point, we had examined more than 1100 herbarium specimens. Through April 2024, we continued this study of historic (and recent) collections by borrowing Indiana specimens from major herbaria located outside the state, including the Harvard University Herbaria, the New York Botanic Garden, the Bailey Hortorium at Cornell University, the Milwaukee Public Museum, Morton Arboretum, the Carnegie Museum in Pittsburgh, and the University of Illinois.

By April 2024, we had assembled data on more than 2500 specimens; however (as noted in my 2021 report), most were over 70 years old. But a comprehensive survey should be relevant to what is growing in today's landscape. Have *Rubus* species that turned up rarely among old specimens disappeared due to habitat destruction or change? Or had they been overlooked in the past and are actually not so rare? Are there new invaders that were not present in Indiana 70 years ago or have otherwise gone undocumented?

The answers to these questions require fieldwork. To that end, I rented a house in Indianapolis for the month of June 2024 with the help of a grant from the INPS. While Scott Namestnik and a handful of other field botanists conducted their 2024 *Rubus* surveys as parts of broader projects, I focused my fieldwork on those Indiana counties that we knew the least about based upon our specimen data. In my 2021 article, I noted that there were five counties with no well-documented Rubus specimens. Since then, Scott and I turned up at least one good specimen from Jay and Rush counties, leaving Adams, Benton, and Carroll counties without records.

To organize my fieldwork, I ranked all of Indiana's 92 counties by their number of known *Rubus* species. Although our project has documented about 50 species of *Rubus* for Indiana, 40 poorly studied counties each had records for less than five species. Those counties were to be my focus for June 2024. I worked with

Bramble — *continued on page 2*

Inside

Scott, Wyatt Williams (IDNR), US Forest Service and Fish & Wildlife Service personnel, and various land trusts to identify appropriate sites to visit in my 40 target counties. Sometimes there were so many sites within a county that I couldn't cover them all, but for a few counties, finding even a single site was difficult.

Nearly every day in June, I drove from my rental in Indianapolis to sites in one or more of my target counties. Occasionally, I had the good fortune of working together with other botanists, site managers, or local guides, such as the day I visited Sycamore Land Trust (SLT) sites in Orange County with Daniel Layton from SLT and INPS member, Ellen Jacquart. It was fascinating to have an opportunity to explore so much of the state at a prime season for seeing and collecting *Rubus*. This year, thanks to a warm, wet spring, the brambles were typically well-developed and even "ahead of schedule."

*According to herbarium voucher specimens, Allegheny blackberry (*Rubus allegheniensis*) is a common species of blackberry across much of Indiana.*

P. Rothrock

June 2024 weather wasn't always the best, with a fair number of stormy days (in some areas taking down power lines and felling trees) and others with above-normal temperatures and humidity. On sultry days, I typically started out at sunrise and stopped when the heat became uncomfortable. Every few days, I stopped at Butler University to drop off plant presses filled with my latest collections. My thanks to Marcia Moore, Director of the Friesner Herbarium, for hosting the needed workspace for drying specimens and reloading presses.

M. Widrlechner

Wineberry is one of several non-native brambles moving into Indiana.

June 22nd was a special day: it combined my fieldwork with a *Rubus*-oriented field trip sponsored by the Central Chapter of INPS. We met at Summit Lake State Park in Henry County and spent two hours that morning exploring woodland and prairie trails with enough *Rubus* diversity that I could show various plant traits helpful for identification and how to make good specimens to five INPS members and the park's naturalist.

During the course of my Indiana stay, I was able to make more than 120 *Rubus* collections from 33 of my 40 target counties, including Adams, Benton, and Carroll (the counties that still had no vouchers) and from four non-target counties. Nearly all the vouchers (except for duplicates) will be deposited at the Friesner Herbarium. At least 90 represent new county records. More new records may turn up later this year, when I return to Butler to carefully verify IDs and attempt to figure out some mysteries that couldn't be resolved in the field.

As far as I know, the 2024 fieldwork did not add any new species to the ca. 50 that are already known from Indiana. But I did make multiple collections of three invasive species, *Rubus caesius* (European dewberry), *R. phoenicolasius* (wineberry), and *R. serissimus* (everbearing blackberry) from counties where they had not been vouchered before, suggesting that these worrisome species may be more widespread than previously thought.

This June was a fascinating learning experience. I experienced a diverse array of wonderful natural areas across the Hoosier state and now have a much better feel for why many of my target counties had few or no *Rubus* records. In a few cases, it seems there is so much agricultural development and so little accessible habitat, that those counties have long been quite poor in *Rubus* diversity. But in many cases, especially in the southern half of the state, I believe that it is the product of past neglect. Either good sites were totally overlooked or the botanists collecting there avoided sampling *Rubus*.

Plans for next year's Indiana bramble rambles are already in the works! They include visits to southern Indiana counties that were on my 2024 target list but that I couldn't get to, a few return trips to special sites where I didn't have enough time for thorough surveys, identifying additional barrens and glade habitats that could harbor interesting *Rubus* diversity, and searches for species that were not encountered in 2024.

Mark P. Widrlechner is a member of another INPS, the Iowa Native Plant Society, and recently retired from a faculty position in the Horticulture Department at Iowa State University, Ames.

INPS Annual Conference 2024

You do not want to miss AC 2024! … and its theme, "Nourishing the Web of Life."

The conference will take place at the Forum Events Center in Fishers on Saturday, October 26, with exciting pre-conference events on Friday, October 25. All the details and the registration link can be found at – *https://indiananativeplants.org/inps-sponsored-events/annual-conference.* Be sure to register soon as registration will close **two weeks before the conference on Saturday, October 12.**

Here are the reasons to join us:

1. The Speakers. Our keynote speaker, Dr. Desiree Narango, will share her research and her work with Dr. Doug Tallamy, comparing how native and nonnative plants in residential landscapes vary in their support of pollinators and birds. Our own Roger Hedge will introduce us to Indiana's ferns, their distribution and their ecology. Dr. Christian Krupke, an entomologist from Purdue, will explore the unintended consequences that insect control in corn and soybean fields has on non-agricultural land, and other plants and animals in Indiana. Myrene Brown wants to dispel the myth that growing spring ephemerals takes a forest and will show us how to incorporate these plants into our home landscapes to provide food for early emerging bees and insects. Dr. Justin Maxwell will reveal how tree ring analysis can inform us about past climates in Indiana and how that knowledge can be used for future water management plans in the state. Scott Namestnik will explain the reasons why Indiana's endangered and threatened plant species are so rare.

2. Friday Workshops, Hikes, and Tours. This year there are many inspiring activities to choose from on the Friday before the conference. Brooke Alford will teach a workshop on how to reduce food waste by composting with worms. There will be guided tours of the pollinator meadow at Newfield's Virginia Fairbanks Art & Nature Park, the historical wetlands at Marian University's Ecolab, the restoration work at Central Indiana Land Trust's Nonie Werbe Krauss Nature Preserve, and of the rich diversity of plants and animals at Ritchie Woods in Fishers. Conference attendees can enjoy an autumn stroll around the recently opened native planting trails with staff from Conner Prairie and the Indiana Wildlife Federation and discover how wetland habitat restoration efforts have helped birds there. If large plants are your thing, there is an opportunity to enjoy a leisurely tour of the magnificent native trees at Crownhill Cemetery, which is an accredited arboretum. Additional events include exploring restoration efforts at the White River Bluffs and their impact on the stream function pyramid, a tour of Butler University's Friesner Herbarium, a talk about Indiana medicinal plants in the Apothecary Garden, and an opportunity to see the progress in renovating the Holcomb Garden (which is supported by INPS).

3. Friday Evening Socials. On offer again this year will be various opportunities before the conference to socialize over a beverage or two with fellow INPS members.

4. Native Seed Swap. The Saturday seed swap gets more popular every year. This is your chance to donate and pick up seeds of native plants. In previous years, there have been on average more than 100 donations representing over 75 species for conference attendees to choose from.

5. Exhibitors. This year we are expecting some fantastic exhibitors to table in the foyer outside the main auditorium where you can browse information about environmental organizations in Indiana and buy environmentally themed items from vendors.

6. Book Sale. As usual there will be a wide variety of books about native plants and wildlife for sale including books by our speakers (where available) and books related to the topics they cover in their talks.

7. Meet INPS Members. This is your chance to meet other native plant enthusiasts from around the state, including some you have only known through articles they have written for the INPS Journal or postings in the INPS Facebook group.

8. Conference Shirts. You won't want to miss getting your hands on this year's beautifully designed shirt featuring INPS's plant of the year.

9. Continuing Education Credits. For those interested, we are setting up continuing education credits for both landscape architects and pesticide applicators. Look for details on the website.

Photos courtesy of the speakers. From top: Desiree Narango, Roger Hedge, Dr. Christian Krupke, Myrene Brown, Dr. Justin Maxwell, Scott Namestnik.

Joe Cox's Trees Live On

By Paul Rothrock

Part 1

The Indiana University Herbarium houses significant information about the natural history and especially the flora of Indiana. Over the past decade, while acting as the Associate Curator, I have had surprises about artifacts housed by the Herbarium as well as by the plant specimens. Photos from Charles Deam's study grace the walls, his vasculum and field press reside hidden in a cabinet, the latter with the newspaper from 1952 when he last used it. Log books carefully record each and every collection trip. And even some of Deam's correspondence and library can be found in the Herbarium as well as his dissection microscope.

JOE COX'S TREES LIVE ON

By Andrew H. Hepburn

BLANKETING a ridge two miles south of Paoli, Indiana, is a patch of woodland that is unlike any other. For more than 100 years the people of Paoli have known it as the Cox Woods. Soon it is to be renamed the Indiana Pioneer Mothers' Memorial Forest and become a forest museum.

Cox Woods is unique for a simple but unparalleled reason. It has been left alone. No tree has been cut. No roadway leads through it. Few have never touched these hardwood trees.

That trees of great value for commercial purposes should still exist today in a region studded with wood-using industries approaches the miraculous. Forest experts who have explored the Cox Woods with awe are at a loss to understand – until they learn about Joseph Cox, who died in December 1940, at eighty-three.

Most recently I found several envelopes with articles that Charles Deam had carefully saved for future reference. One contained newspaper articles by Charles Ek of Kokomo that dated from the late 1930s to early 1940s. These opined about the flora of Howard and Tipton counties and the need for meaningful acts of preservation. The other was even more head smacking, an article from The Saturday Evening Post dated January 31, 1942. Joe Cox's woods near Paoli, Indiana, seemed like an odd subject for a national publication. But what I read left me amazed and dumbfounded.

Below is an excerpt from the opening of that article written by Andrew H. Hepburn, travel editor. Overall the article carefully describes the confluence of events that led to the preservation of Joe Cox's woods, known today as Pioneer Mothers' Memorial Forest.

"Blanketing a ridge two miles south of Paoli, Indiana, is a patch of woodland that is unlike any other. For more than 100 years the people of Paoli have known it as the Cox Woods…

Cox Woods is unique for a simple but unparalleled reason. It has been left alone. No tree has been cut. No roadway leads through it…

Cox woods stand today in its virgin majesty because the Cox family, and particularly Joseph Cox, for more than seventy years resisted very tempting opportunities to sell their trees. There was one exception. A few years ago, Joseph, in desperate need, sold two trees on the fringe of the main tract. He paid urgent debts with the proceeds – and was troubled to the end of his days by a sense of guilt at having betrayed a trust.

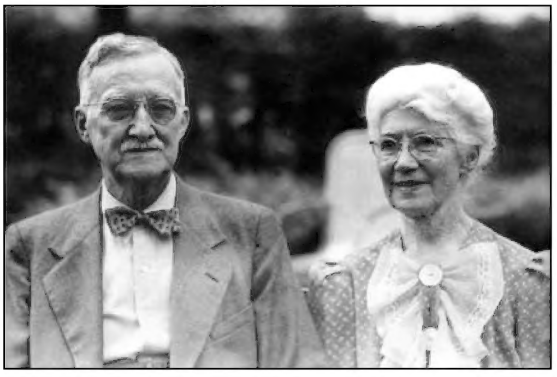
The story begins 130 years ago. Another Joseph Cox, living in the forests of Eastern Tennessee, heard reports that there was soon to be a new state north of the Ohio River, that new land was to be had there almost for the asking – land sheathed in a great forest of useful hardwood trees, land where streams were clear, where game was abundant, where cleared ground would grow fabulous crops.

[The original] Joseph Cox [around 1811] chose a tract of 253 acres, just outside a new Quaker village called Paoli. In 1816, the year Indiana became a state, he received title to it. The story might have ended last year with the liquidation of the Cox estate following the death of Joseph, and the sale and cutting of the timber of the Cox Woods. But it didn't. Joseph's jealously guarded trees were not sold and cut up… as had been the fate of practically all the rest of Indiana's once magnificent forest. Instead, a combination of events led to an unprecedented national campaign to preserve the trees. The campaign, curiously spontaneous, produced money from various unexpected quarters. The trees were saved.

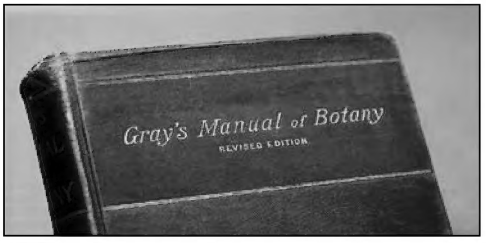
The upshot has been that within less than a year of the burial of Joseph Cox, who died sorrowing that the trees he had guarded with such devotion would be sold and cut, the tract was firmly anchored in the public domain as a crown jewel of the United States Forest Service."

More of this amazing story to come!

Charles Deam Memorabilia at Indiana University Herbarium

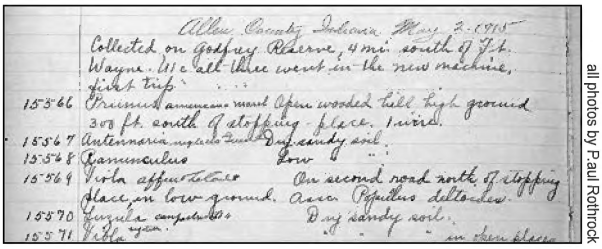


Charles and Stella Deam (seen here in 1943) were prominent members of the Bluffton, Indiana community for over 60 years. When they first met, Charlie ran a drugstore and Stella was the new school teacher in town. They married in June 1893 and only parted in death in 1953.



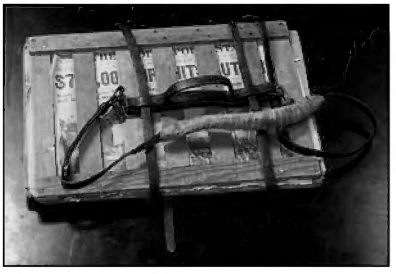
Deam was a bookworm and owned an extensive botanical library. A few volumes hide out in the IU Herbarium including this classic field guide, "Gray's Manual of Botany," published in 1889. Likely this was a purchase recommended by Deam's young mentor, Bruce Williamson, who helped Deam get started in his botanical education during the 1890s.

Deam kept meticulous records of his plant collections spanning approximately 45 years. He collected over 67,000 specimens that are deposited in many major herbaria across the US. He collected extensively in Florida, a favorite wintering spot, as well as Indiana.



all photos by P.aul Rothrock

In 1915 Deam acquired his first automobile for pursuing plant collecting around the state. He called his Model T the "Weed Wagon." On the first day (shown in this page of his logbooks), Stella and their daughter Roberta accompanied him. He logged more than 5000 miles during that first year and collected over 3500 specimens.



Deam was always fully equipped for field work. In addition to his famous corn knife (useful for killing his nemesis, snakes), he packed a field press used for temporary storage of plant specimens before being moved into and dried in a plant press composed of alternating layers of blotters and corrugated cardboard. Even in his last years, Deam was ready to go "botanizing," as evidenced by the fact that this field press still has newspaper from 1952 inside.

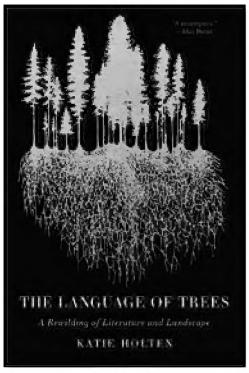
Before the advent of plastic bags, botanists like Deam would carry a metal vasculum. With a small amount of water inside, one could rove through a habitat and quickly stow a quantity of fresh plant material. The vasculum kept all hydrated until ready for transition to a plant press.

Book Review:

The Language of Trees

by Katie Holten

Reviewed by Shawndra Miller



A is for Apple. B is for Beech. C is for Cedar.

It's not a primer for children. It's a typeface created by Irish artist Katie Holten in which pictographs represent each letter of the alphabet.

The typeface figures prominently in *The Language of Trees: A Rewilding of Literature and Landscape* (2023. Tin House Books, United States), where Holten has assembled a forest's worth of voices. From Zadie Smith to Radiohead to Winona LaDuke to Robert MacFarlane, contributors to this expansive anthology look at trees from every angle imaginable. And each piece incorporates Holten's extraordinary typeface in its design.

The name of the new font is Trees, though a few of the "trees," such as nannyberry (*Viburnum lentago*), might more accurately be called shrubs.

Lovers of trees may recognize some shapes: the iconic redwood (*Metasequoia*), the generous sycamore (*Platanus*), the spreading elm (*Ulmus*). The silhouettes and names of other trees (e.g., *Zelkova* and *Xanthoxylum*) are less familiar. For a native plant enthusiast, it might be off-putting to see exotic and even invasive species, such as tree-of-heaven (*Ailanthus altissima*), included in the mix.

But if its goal is rekindling a sense of playfulness and wonder for the natural world, this whimsical font is a success. (Holten has since developed a USA-themed version of the Tree Alphabet, available on her website, where she also offers Stone and Wildflower Alphabets.)

With an introduction by Indiana's own Ross Gay (who also contributes a rollicking prose poem), *The Language of Trees* is a powerful blend of nature-writing, scientific discourse, indigenous wisdom, history, art, lament, and call to action. Holten calls it "a love letter to our vanishing world, written with Trees."

The first page of each essay is printed in both English and Tree. Certain pages are devoted to Tree-annotated quotes from luminaries like Ursula K. LeGuin, Jorges Luis Borges, Suzanne Simard, Sojourner Truth, and Richard Powers. There's even a work by Plato, "Under a Plane Tree," depicting a conversation with Socrates.

There are recipes, such as evergreen tea, offered by Valerie Segrest, a member of the Muckleshoot Indian Tribe, in a piece called "Medicine of the Tree People." There are dispatches from the fields of ethnobotany, forest ecology, archeology, mycology, poetry, and beyond. Less accessible are artists' statements, devoid of context but nonetheless intriguing.

Holten's delicate drawings of leaves, seeds, roots, tree groves, and stick-like glyphs dot the pages as well. A rendering of a tree's cross-section, with annual rings, is inscribed with "Rights of Nature" repeating in a loop under the bark layer.

It's a subtle nod to a theme that builds as this artful work progresses, piling story upon story like leaves on the forest floor. While the book is not presented as a manifesto, it's clearly asking for a new understanding of nature — the awareness that ecosystems or species have intrinsic value, even inherent rights. As such, they should have the same legal protections as people and corporations.

The anthology's contributors are people who love and study trees in myriad different ways, for example: Mary Reynolds ("We Are the ARK"), who advises restoring native ecosystems; Aimee Nezhukumatathil ("Catalpa Tree"), who links the catalpas of her childhood to her mother's love; Thomas Princen ("The Elm Stand") who crafts his own keyboard stand from a felled elm; Amitav Ghosh ("Brutes: Meditations on the Myth of the Voiceless"), who urges storytellers to restore agency to nonhuman beings.

Here we can learn about Moringa trees in Benin, cacao's (*Theobroma* sp.) storied history in Central America, and experimental artificial trees said to pull carbon dioxide from the atmosphere at much higher rates than real trees. (Journalist Gaia Vince asks: "How fickle will our care for forests be, once we discover artificial replacements?")

Some of the works can be inscrutable, like listening to the susurration of leaves high above as you walk through an old growth forest. If it feels a bit like joining a conversation mid-sentence, perhaps that's the point. By decentering the human experience in favor of tree voices, Holten and her collaborators point the way to healing our world.

— continued at right

Book Review:

To Speak for the Trees

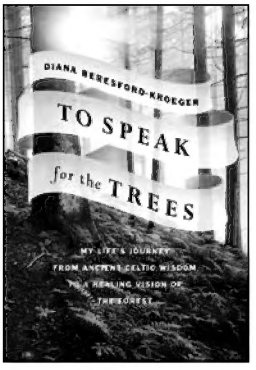
by Diana Beresford-Kroeger

Reviewed by Sidney Bunch

On one of the first warm days in early May I found myself in my local bookstore perusing the shelves in the small "Nature" section looking for some light reading for an upcoming plane ride. Sitting in the middle of the highest shelf was a blue book titled *To Speak for the Trees*, and without reading the synopsis on the back I decided to simply grab it and head to the check out. In that moment, I did not know just how much impact this book would have on me, but now months later there is not a day that goes by where I don't recall the insights shared or the emotions felt while reading it.

To Speak for the Trees: My Life's Journey from Ancient Celtic Wisdom to a Healing Vision of the Forest (2019. Timber Press, Portland, OR) is a memoir by Diana Beresford-Kroeger, an Irish botanist and medical biochemist, that follows her relationship with nature all the way from childhood to the present day. Beresford-Kroeger discusses in depth the turmoil of her home life, as well as the isolation she felt growing up as an English-Irish woman in the 1940s and how that influenced the comfort she sought in nature when she was younger. From a child's first time playing in a forest, to a teenager's first time understanding the impact humans have had on their environment, this book beautifully captures the wonder and awe that many botanists, including myself, have felt in their journey of discovering the natural world and the beauty held in the trees.

Understanding biochemistry is a daunting and seemingly impossible task for many, but Beresford-Kroeger makes her readers almost completely forget this as she explains complex botanical medical findings with ease. As she connects traditional Celtic teachings to modern day medicines, readers can feel a deep sense of respect for and understanding of an unfamiliar culture. Beresford-Kroeger relates her own emotional journey in discovering the extent to which climate change and human interaction has changed and harmed our environment and sacred spaces. She shares what she has done with her platform to protect local ecosystems, as well as what readers can do in their own lives to bring about change.



It should be noted that I am not a bookworm by any means, but I was so entranced by Beresford-Kroeger's writing that I accidentally finished the book in 3 days and was consequently left craving more of her work. I am sure many of us have occasions of burnout or a loss of the spark that started our love for plants. *To Speak for the Trees* renewed that wonder and crave for knowledge that began my botanical obsession and I would highly recommend it to anyone in need of that reminder.

Sidney Bunch is a student INPS member and an undergraduate at Purdue University where she is studying Plant Science and Horticulture in the class of 2025.

"We are all woodland people. Like trees, we hold a genetic memory of the past because trees are parents to the child deep within us. We feel that shared history come alive everytime we step into the forest, where the majesty of nature calls to us in a voice beyond our imaginations. But even in those of us who haven't encountered trees in months or even years, the connection to the natural world is there, waiting to be remembered."

— continued from left

This isn't a book that pulls its punches about what's being lost due to extractive economies. "It's easier for people to imagine the end of the world than the end of consumer capitalism," laments one author.

The solution? A return to relationship. Robin Wall Kimmerer is just one of many in this compilation who advocates a return to kinship with the natural world. In "Speaking of Nature," the acclaimed Potawatomi biologist writes of "gaping holes in the fabric of life."

"The mending we need will require reweaving the relationship between humans and our more-than-human kin," she notes. *The Language of Trees* is part of that reweaving.

Shawndra Miller is communications manager for Central Indiana Land Trust and secretary of the Board of INPS Central Chapter.

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Mission

To promote the appreciation, preservation, scientific study, and use of plants native to Indiana.

To teach people about their beauty, diversity, and importance to our environment.

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Submissions: Anyone may submit articles, photos and news items. Acceptance is at the discretion of the editors. Submit text and photos (300 ppi) via email to *journal@indiananativeplants.org*. Query for writer's guidelines. Deadlines: Jan. 1 issue – Oct 22; April 1 issue – Jan. 22; July 1 issue – April 22; Oct. 1 issue – July 22.

Membership: INPS is a not-for-profit 501(c)(3) organization open to the public. Join at *www.indiananativeplants.org*.

Share online: Send information for posting to *webmaster@indiananativeplants.org*.

Florathon Update

By Barbara Homoya

This year we held our seventh INPS Florathon, so let's take a seventh inning stretch and look back at what has been accomplished by the past Florathons as well as reporting on Florathon 2024. I was very pleasantly surprised by the data and I hope you will be too.

Over the past seven Florathons, more than **$15,000** has been donated to Letha's Youth Outdoors Fund! And for 2024, almost $1200 was donated by over 30 donors. Blooming Stellarias raised the most money this year – nearly $650. Thank you to those donors who gave so generously to support the work of INPS and to the individuals who solicited them.

Another astonishing statistic (at least to me) is that 70 new members have joined INPS due to the Florathon over the past seven years by making a donation of at least $35! This year ten new members were added to the INPS membership roll.

In our first year (2018), we had our highest number of teams – 13! There were eight teams in 2019, then the pandemic hit and our Florathon teams took a hit too, with safety precautions necessitating a change to individuals (of which there were seven) or family groups (there were two teams with a total of five individuals). In 2021, the same rules applied, and we had only one individual (yay, David Mow!) and one family team. Since then, our team numbers have slowly increased. For Florathon 2024 we had six teams (one new) and a total of 21 participants.

Over the past seven years 31 counties have been surveyed in at least one Florathon. This year the teams visiting the most counties were Luscious Stems and Always Be Botanizing (each visited three counties). Other Florathon trivia: best team names have included Wildest Deams and Luscious Stems; Blooming Stellarias and Always Be Botanizing have participated in all seven Florathons: and Wendy Ford's 2018 Fab Fords team included three generations.

Finally, for 2024, the highest species total results were: first place, Always Be Botanizing (Central Chapter) having observed 72 native species in flower; second place, Blooming Stellarias (South Central Chapter) with 65 species; and third place, DNP Retirees (Central Chapter) with 41 species.

We hope you have enjoyed reading in the *INPS Journal* about Florathon experiences over the past few years – and perhaps felt inspired to do a Florathon yourself. Please watch for future Florathon information and team stories in upcoming issues of *INPS Journal*. And if you haven't participated in a Florathon (or have taken a year or more off), consider joining the fun and come on out to the ole ball game and participate in the eighth INPS Florathon in 2025!

Barbara Homoya, a member of the Central Chapter of INPS and Florathon Chair, enjoys learning to identify native wildflowers with her husband, Michael, learning about birds with her son, Wes, and drinking Ash and Elm cider with her son, Aaron and his wife, Andrea – as well as being grandma to their sons, Soren and Enzo.

Florathon Score Card

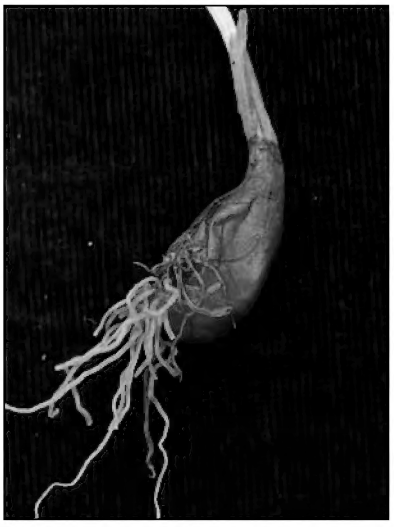
2018. Between April 14 and May 13, 50 native plant enthusiasts formed 13 teams and scoured 23 Indiana counties with the goal of finding as many blooming native plants as possible. The first year totals included wind pollinated families and ferns, which were deleted from Florathons of subsequent years. The Bloomin' Stellarias team, led by Ellen Jacquart, came out on top with a total of 150 species, with We the North (team leader Scott Namestnik) in second place with 128 species. The Forestry (leader Peyton Phelps) searched the most counties (6) and one team, the Fab Fords (leader Wendy Ford), included three generations of team members! Altogether, over $4200 was raised for Letha's Youth Outdoors Fund from nearly 100 donors. In addition, INPS added 19 new members.

2019. There were eight teams with 33 participants who canvassed 16 counties. Forty-nine donors gave a total of nearly $2400 to support the work of Letha's Youth Outdoors Fund. Eight new members were added to the INPS rolls. Top awards went to Bloomin' Stellarias for most species, DNR Nature Preserves Team for largest donation amount, and Always Be Botanizing for most counties surveyed.

Florathon — continued on page 11

Botany 101:

Bulbs and Their Coworkers



P. Rothrock

The corm of American trout-lily has a brown tunic and roots that emerge from a basal plate. Since many references call this a bulb, check for yourself whether it has the layers of a bulb or is solid.

William Thomas

Bloodroot has a thick, underground, horizontal rhizome. It produces roots from a number of locations and in this example has branches.

By Rylie Farr

Can you describe the difference between a tuber and a rhizome? How about the difference between an imbricate and a tunicate bulb? Don't feel bad if you can't! While most people are familiar with the catch-all term "bulb" for describing the underground storage structures produced by plants like tulips (*Tulipa* spp.) and onions (*Allium* spp.), only the true botanical initiate can explain the fine differences between bulbs, corms, tubers, and rhizomes. Although hiding from plain sight, these underground storage structures are essential for the survival of many of our native species. Let's look at the differences between these categories of underground storage structures and also discover some of their unique properties and human uses.

The reason why plants have dedicated storage structures in the first place is to ensure survival *throughout* the year. By storing a supply of food during the growing season, these plants can then go dormant over the winter or dry season. When favorable conditions return, they can restart growth already well-endowed with resources. If we contrast this with other life strategies, annual flowers pour all their energy into a one-time reproductive event and then die, while biennials put their focus on preparation for a second (or third) year of all out reproductive effort and likewise die. Perennials take a longer-term strategy. Bulbs, corms, and other types of storage organs are just some of the ways plants can make this happen.

For the most part, specialized underground storage structures are divided into four categories: true bulbs, corms, tubers, and rhizomes. Most people combine two or more of these categories into one entity, confusing one for the other and generalizing the term "bulb" for anything remotely bulb-shaped. And, just to make things more complicated, there is one other common underground storage structure, a thickened root called a taproot. While there are clear distinctions between each of these categories, nature is more complicated than the nice and tidy boxes we devise for it, so some plants have storage structures that fall into the gray zones between these categories.

True bulbs are made up of layers of scales and fleshy leaves attached to a basal plate. These layers can grow into an above ground shoot, while the basal plate gives rise to roots. True bulbs are categorized further into tunicate bulbs and imbricate bulbs. Tunicate bulbs have a tunic, a thin, papery layer that wraps around the bulb to protect and hydrate it. One tunicate bulb species native to Indiana is wild leeks or ramps (*Allium tricoccum*). With leaves commonly seen in spring and sometimes covering the entirety of a forest floor, this species has delicate cream-colored blossoms that appear in early to mid-summer once the leaves are gone. The bulbs of ramps, often harvested for their garlic taste, possess a papery tunic. By contrast, imbricate bulbs don't have this tunic layer and are more delicate. The Michigan lily (*Lilium michiganense*), a true lily that loves prairie environments and is pollinated by moths and butterflies, produces imbricate bulbs.

Corms, in contrast to true bulbs, are modified stems that are a solid storage mass rather than layers or rings. Corms have a tunic as well as a basal plate from which roots develop. One or more buds growing up from the top of the mass give rise to the above ground stems, leaves, and flowers. The native American trout-lily (*Erythronium americanum*), historically used by the native Americans as a stimulant, dermatological treatment, and contraceptive, is a corm-based species, unlike its "true lily" relative.

Tubers are different from corms and true bulbs in that they have neither tunic nor a basal plate. Roots and shoots develop along the surface of the tuber. There are two categories of tuber: root tubers and stem

tubers. Root tubers put their storage towards enlarged root vessels, while stem tubers store their nutrients in modified stem structures. The duck-potato (*Sagittaria latifolia*), which thrives in Indiana wetlands, has root tubers enjoyed by waterfowl. In Panama, duck-potato was often mashed into a poultice for infected wounds and insect bites. The stem tubers of potato-bean (*Apios americana*) found medicinal use among Omaha and Cherokee peoples in addition to being nutritious. They are said to have three times the amount of crude protein that is present in the familiar Irish potato (*Solanum tuberosum*).

Rhizomes are similar to true bulbs and corms in that they all work as a form of food storage for the plant. They are similar to stem tubers in being a modified stem (i.e., having nodes that may produce aerial shoots and roots) and not having a basal plate. Rhizomes, however, generally grow horizontally underground. Plants like bloodroot (*Sanguinaria canadensis*) have rhizomes that stretch into the soil. In bloodroot the rhizomes contain the iconic crimson-colored liquid that has been used as a dye or insect repellent.

An outlier in storage organs are taproots, a type of root system consisting of one large central root and tinier, thinner roots that branch off it. Plants such as dandelion (*Taraxacum officinale*) and wild carrot (*Daucus carota*) are harvested for their storage roots. Based upon their shapes, types of taproots include conical roots, fusiform roots, and napiform roots. These storage structures often are quick to grow and even more difficult to uproot, due to their depth. Some native flowering plants have this feature including the clustered poppy-mallow (*Callirhoe triangulata*) and common milkweed (*Asclepias syriaca*).

Although these terms can easily be mixed up with one another, it is important to separate the different types of "bulbs" from one another. Learning how to differentiate these various storage structures can help you improve your gardening skills or management of your native plant ecosystem!

Rylie Farr is a senior Biology major at Huntington University who intends on pursuing a career in environmental conservation and field research after graduating.

2020. During the COVID year, seven individuals, plus five more on a pair of family teams, surveyed 13 counties in search of native herbaceous plants in bloom. The highest species totals were: first place, Always Be Botanizing (Mike, Barb, and Wes Homoya) with 94 species; second place, David Mow with 87; and his previous years' Bloomin' Stellarias' teammate, Ellen Jacquart, placed third, finding 75 species in bloom. Twelve individuals raised over $3000 for Letha's Youth Outdoors Fund and over 60 donors contributed. Fifteen new members were added.

2021. Four individuals, one solo and three on a family team, surveyed seven counties. The highest species totals went to Always Be Botanizing (Mike, Barb, and Wes Homoya) with 100 species and, in second place, David Mow with 86. Those four individuals raised over $1000 for Letha's Youth Outdoor Fund! Seventeen donors contributed and three new members were added to the INPS.

2022. There were five teams – three of them new – with 13 participants. The five teams surveyed six counties. The highest species totals were: first place, Always Be Botanizing (Central Chapter: Mike, Barb and Wes Homoya) with 87 species; second place, Wild West (West Central Chapter: Greg Shaner, Mary Sue Waser, Patty Jones, Mickey Penrod, Susan Ulrich) with 56; and Bloomin' Stellarias (South Central Chapter: David Mow, Steve Dunbar) placed third, finding 51 species in bloom. Over $2500 was donated by over 30 donors and nine new members were added.

2023. Four teams (one new) and a total of 15 participants visited six different counties. The highest species totals were: first place, Bloomin' Stellarias (South Central Chapter) with 72 species; second place, Always Be Botanizing (Central Chapter) with 65 species; third place, Luscious Stems (North Chapter) with 29 species, and fourth place, Goose Pond Hunters (South Central and Central Chapters) with 20 species. Over $1400 was donated by two dozen donors and six new members were added.

Ritchey Woods Nature Preserve: Nature's Book in the Heart of a City

By Crystal DeBoer

Like a book cover, a wood's edge is just the beginning. A quick peek at a few pages cannot tell the whole story which has unfolded over generations. There is drama and serenity, unrest and damage, new life and stately old souls. As the small town of Fishers shifted away from fields and agriculture, the former Osborne family homestead swelled with new life and new stories of its own.

I do not know the story of the descendants of the family members that forever reside in a small family cemetery dating back to the mid-1800's (for more history, Google "Osborne Ritchey woods" and find the Facebook page). Yet I am grateful for what has become of their former home. The life that continues to thrive emerged from a fortunate series of choices made by people to protect and enhance and, just as importantly, to appreciate decades ago what became Ritchey Woods Nature Preserve.

Ritchey Woods is a living community of trees, shrubs, grasses, sun-hungry wildflowers, ephemeral forbs, dogwood (*Cornus* spp.) thickets, grand oaks (*Quercus* spp.), and fallen American beech (*Fagus grandifolia*). Without these plants, species diversity would be akin to a short story, not a novel. Over 200 species of plants live within 127 acres of this urban nature preserve along with over 150 species of birds feasting upon the bounty of insects. (Sixty species of insects have been identified by brave souls.) Let's not forget the magical fairy shrimp (*Anostraca*) in spring or our endangered bats (*Chiroptera*) in summer. Still some critics feel the preserve is overrated and it has little hope. And yet, the life teeming within are the ones writing their own story.

*Swamp milkweed (*Asclepias incarnata*) is a well-known host plant for monarch butterfly larvae (*Danaus plexippus*) and also a nectar plant for a range of insects.*

C. Heitzman DeBoer

Google Earth

The aerial view of the biodiverse Ritchey Woods (outlined in white) shows its challenging neighborhood: a small airport to the south and west, housing north of 106th Street, and commercial complexes to the east of Hague Road.

In spring, the trout lilies (*Erythronium* spp.), sharp-lobed hepaticas (*Anemone acutiloba*), wild hyacinths (*Camassia scilloides*), and trilliums (*Trillium* spp.) make it hard to look up – even the birding folks get distracted. Sedges (*Carex* spp.) add vibrant green with vividness and petite flowers to what was a bleak winter landscape. Small and numerous green flowers of the black snakeroot (*Sanicula* spp.) will soon cover the forest floor space as the ephemerals fade after completing their part in the show.

On the ridge overlooking Cheeney Creek, an oak tree reaches into the canopy. It isn't the largest of the oaks – several of its brethren take up more space while overall sugar maples (*Acer saccharum*) dominate. But this oak is special to me – to me and the pair of pileated woodpeckers (*Dryocopus pileatus*) who successfully raised two to three young in its cavity three years in a row. The hole in the trunk is not as big as one would think, yet big enough for the young to all stick their heads out calling for more food.

A sycamore (*Platanus occidentalis*) tree, grown large with scars and yet sturdy and trustworthy limbs, claims its space at the edge of the wooded wetland. Presumably planted by the wind, this sycamore now hosts fierce red-shouldered hawk (*Buteo lineatus*) parents who keenly watch their nest, which is well protected from trails by pin oak (*Q. palustris*) and hackberry (*Celtis occidentalis*) trees. They search the adjacent restored prairie for mice hiding amongst the big

bluestem (*Andropogon gerardi*) and Indian grass (*Sorghastrum nutans*) so their young can feast, and feast they do.

White-tailed deer (*Odocoileus virginianus*) stay just out of sight, using the fragrant spicebush (*Lindera benzoin*), thickets of rough-leaf dogwood (*C. drummondii*), and sporadic bladdernut (*Staphylea trifolia*) clumps to move about their home. The deer leave enough oak seedlings to provide competition for other tree species (e.g., Ohio buckeye (*Aesculus glabra*) and blue ash (*Fraxinus quadrangulata*)) that do not suffer as much pressure from browsers.

Shagbark hickory (*Carya ovata*) trees, whose slow and tedious growth challenges even the most patient of botanists, have had enough time to reach full size. The bats are proof of that. With the moonlight, they emerge from crevices in the bark, and with their fellow hunters, the silent owls (*Strigiformes*), search for their meals of choice over the prairie and through the woods. The prairie itself is in heavy competition – rose (*Rosa* spp.) and blackberry (*Rubus* spp.) patches competing with many kinds of prairie forbs for the precious full sunlight that fuels their existence.

Ritchey Woods Nature Preserve renews with life every year – from skunk cabbage (*Symplocarpus foetidus*) melting late winter snow to the last of the asters (*Symphyotrichum* spp.) in the fall. A green island for all with tall oak trees and prairie flowers, against a backdrop of facilities, houses, and a small airport. Wide-eyed little humans race along the trails to the platform to better see the flowers or maybe an American goldfinch (*Spinus tristis*) or indigo bunting (*Passerina cyanea*) in nearby dogwoods. Come and "crack open" the nature book that is Ritchey Woods. I hope its story stays with you and continues for many generations to come.

Crystal DeBoer grew up in the town of Fishers, then earned her NRES degree from Purdue University. She resides with her family west of Indianapolis and works as an ecologist throughout the state.

Recent INPS Facebook Chats

The INPS Facebook site has over 70,000 members. It reaches an audience far beyond the formal INPS membership. It is obvious why. As a moderated site, it provides a wealth of feedback on questions of immediate interest. Here is one recent exchange.

Patricia Peterson-Wuchter asks:
What's the best time to harvest butterfly milkweed (*Asclepias tuberosa*) seed pods? Mine did not reseed on their own last year, though my whorled milkweed (*A. verticillata*) reseeded prolifically. I plan to move some things around this fall and give my butterfly milkweed more space. I might try winter sowing, but I want to collect my seeds at the right time. Here are my pods currently (at right).


Patricia Peterson-Wuchter

Replies:

Richard Kenmuir
You could put small 2" × 3" jewelry mesh bags on them and let them go to seed. The bags cost less than $10 on Amazon for 100 bags.

Linda Hershey
If you split one open and the seeds are brown, they can be harvested.

Erika Mennerick
Wait until they are starting to dry or crack open to harvest. Then you can open them and separate the seeds (before they go to fluff!) and store in a paper bag until you're ready to winter sow them.

Alison Knue
I collect ours because I don't want them to spread all over the bed but would like to plant elsewhere. You have to just keep an eye on them daily. Not all pods will be done at one time either. They will start to turn brown and dry out. They will be slightly "squishier or rather puffier" when you squeeze them as they lose moisture; if they feel very solid they aren't done. If you see them start to crack, it's time to harvest but they can go from a slight crack to blowing in the wind fast – so keep a close eye. As for the time of year to harvest? It's still a bit early for most, but each plant can be a little different.

Jay Drew
As has been said, wait for them to start to dry and get "squishy". You can carefully split the end open and pull out the fluff while holding onto the bulb end to keep the seeds and save having to pick the seeds out of a big pile of fluff.

Jonathan Reimann
Put a couple of twist ties around them and it will hold the pods together for easier collection when they are dry enough. If you want seeds only you can then hold firmly in the middle and pull the fuzz out at the end leaving only the seeds behind in the center of the pod.

while foundational shrub plantings add structure and visual weight behind the color. Plants in this area provide long-lasting color – butterfly milkweed (*Asclepias tuberosa*), prairie coneflower (*Echinacea pallida*), black-eyed Susan (*Rudbeckia sullivantii* 'Goldsturm'), nodding onion (*Allium cernuum*), and gayfeather (*Liatris spicata* 'Kobold'). Prairie dropseed grass (*Sporobolus heterolepis*) adds grace throughout the planting.

Laura Stine

The stone stream has pockets where water gathers in a stone cavity, providing habitat for wildlife.

Serviceberry (*Amlanchier* × *grandiflora* 'Autumn Brilliance'), summersweet (*Clethra alnifolia* 'Hummingbird'), and winterberry (*Ilex verticillata* 'Berry Poppins' and 'Mr. Poppins') provide structure behind the color. Since most visitors to the ERC come during the school year, winter interest needed to be considered. Seedheads from perennials and grasses contribute to the winter interest as do persistent red berries from the winterberry shrubs.

On the west side, the building has a tall façade to the roof peak. Larger shrubs sitting at the foundation create a better sense of proportion. Groupings of black cherry trees (*Prunus serotina*), pagoda dogwood (*Cornus alternifolia*), and red chokeberry (*Aronia arbutifolia*) work well in this area. Witch-hazel (*Hamamelis virginiana*) placed at the top of the west dry creek slope further naturalizes the appearance.

Mid-slope, on the west side, a large area of oak sedge (*Carex pensylvanica*) creates a native lawn. Weed pressure in this area tends to be more visible since anything other than the fine-textured leaves of *Carex* shows up like a neon sign. As the sedge plants grow and fill in, it is hoped that this will be less of a problem.

For educational purposes, the design includes a display of smooth hydrangea (*Hydrangea arborescens*) adjacent to the footpath on the west side. In one section cultivar Annabelle was planted and, in the other, the straight species *H. arborescens*. As these shrubs mature, they will illustrate how a change in bloom structure within the same species may affect a plant's desirability to pollinators.

Runoff

The location of the ERC directly adjacent to the St. Joseph River provided an opportunity to showcase ways in which rainwater runoff from roofs and parking lots can be utilized in an environmentally-friendly landscape. Disconnecting underground tiles from the downspouts and directing that water through the landscape via a dry creek bed has the dual purpose of providing ephemeral wetland-like habitat for wildlife and filtering the rainwater rather than simply draining to the river. With this in mind, no pre-emergent herbicide was applied during either phase of the project. Unfortunately, this likely led to the current challenge of weed control.

In designing the stream bed, boulder placement had to create a natural "just stumbled out of Brown County" aesthetic, while also allowing for the safety of humans who would inevitably feel the need to walk off the path and into the landscape. Stone "pockets" in the sides of the dry creek bed provide dark dampness where wildlife can

hide. In various spots along the stream the bottom was excavated more deeply, creating depressions where stormwater may pool and linger longer for birds and butterflies.

The dry creek provides additional soil moisture that supports marsh milkweed (*Asclepias incarnata*), great blue lobelia (*Lobelia siphilitica*), blue flag iris (*Iris virginica*), and cardinal flower (*Lobelia cardinalis*).

Wildlife

Wildlife already takes great advantage of the native landscaping. Visitors and staff have witnessed a wide assemblage of resident and migratory birds foraging on the perennial seeds and berries, and making use of the small pond for drinking and cleaning. Deer (*Odocoileus virginianus*) have ambled by, and groundhogs (*Marmota monax*) routinely sample the greens. Eastern gray treefrogs (*Dryophytes versicolor*) successfully used the small pond to reproduce, and turtles (*Testudines*) have come up from the river to lay their eggs.

Thank You

ERC wants to thank the many donors who made this project possible. The project was principally funded by private donors, most notably Dick and Marni Waterfield, but many others as well. We are grateful for the INPS grant that purchased a portion of the plants for this project. Sean Nolan, the Northeast Chapter President, kindly assisted with the application. ERC and INPS volunteers from the Northeast Chapter planted all perennials and spread mulch in Phase I of the project. Those same folks have assisted in the considerable weeding effort needed to keep the landscape looking its best.

Bruce Kingsbury is the Director of the Environmental Resources Center and Laura Stine, President of Laura Stine Gardens in Fort Wayne, is a former president of the Northeast Chapter of INPS.

Bruce Kingberry

Samantha Theisen, Purdue campus Sustainability Coordinator, celebrates construction of the new dry creek bed that carries runoff from the Center's roof.

Laura Stine

After completion of phase 2, the west side of the ERC has plentiful pollinator friendly native plants at the bench and a newly planted Carex *"lawn" on the slope.*

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Our Native Landscaping Collaboration:

Lessons in Design, Implementation, and Impact

By Bruce Kingsbury and Laura Stine

The Environmental Resources Center (ERC) is one of the Centers of Excellence at Purdue University Fort Wayne. The mission of the ERC is to promote the understanding and protection of our region's natural resources. Fulfilling that mission involves research on animals and plants and their habitats, providing educational opportunities for students and the community, and public engagement where we bring our expertise to bear on environmental issues in collaboration with others.

One of the ways ERC educates is by demonstration, and one way to do that is by showcasing sustainable landscaping around the Center. The goal of the ERC landscape is to use native plants or their cultivars whenever possible, and demonstrate that these plants can not only be attractive, but serve other ecological roles such as supporting pollinators, providing forage such as berries, and offering shelter to wildlife.

Laura Stine

During phase 1 of the ERC project volunteers planted small forbs and grasses at the entrance.

Given their interest in sustainability, as well as the quality of their work, Laura Stine Gardens, LLC was asked to develop a landscape design for ERC. Stine Gardens typically design with native plants in residential garden spaces, a mission that not only improves the environment but also creates opportunities for clients to connect with nature. The ERC project afforded the opportunity to reach many more people in the community with a "plant more natives" message.

Design Elements

Landscape design should always take into account focal points and dominant views when choosing areas to highlight. The ERC front entrance was priority #1 and needed plants with strong visual appeal. The plants chosen for ERC create a loose, prairie aesthetic,

Landscaping — *continued on page 14*